



## **Confederated Tribes of the Colville Reservation**

P.O. Box 150  
Nespelem, Washington 99155

### **Via Express Mail**

September 29, 2000

Donna Darm, Acting Regional Administrator  
National Marine Fisheries Service  
525 NE Oregon St.  
Portland, OR 97232-2737

William McDonald, Regional Director  
U.S. Bureau of Reclamation  
1150 N. Curtis Rd., Suite 100  
Boise, ID 83706

Judi Johansen, Administrator and Chief Executive Officer  
Bonneville Power Administration  
905 NE 11th  
Portland, OR 97232

Brigadier General Carl A. Strock  
U.S. Army Division Engineer  
Department of the Army  
Northwestern Division of the Corps of Engineers  
220 NW 8th Ave.  
Portland, OR 97208-2870

Re: Colville Tribes' Comments on Draft Biological Opinion and All-H Paper

Dear Ms. Darm, Mr. McDonald, Ms. Johansen, and Gen. Strock

As Chairperson of the Colville Business Council, the governing body of the Confederated Tribes of the Colville Reservation (Colville Tribes), I am submitting the enclosed comments on the July 27, 2000, Draft Biological Opinion (BIOP) of the National Marine Fisheries Service (NWS) regarding proposed changes in operations of the Federal Columbia River power system. Because actual changes in operations resulting from a final BIOP will be implemented by the Bureau of Reclamation (BOR), the Corps of Engineers (Corps or COE), and the Bonneville Power Administration (BPA), we are also submitting our comments to these agencies ("action agencies"). These comments have been prepared by the Tribes' Departments of Environmental Trust and Fish and Wildlife and the Office of the Reservation Attorney, of Nespelem, WA, in collaboration with our environmental consulting firms Environment International of Seattle, WA, and Fulcrum Environmental Consulting of Spokane, WA, and our

Donna Darm, William McDonald, Judi Johansen. and Gen. Carl Strock  
September 29, 2000  
Re: Colville Tribes' Comments on BIOP and All-H Paper  
Page 2

Special Environmental Counsel Short, Cressman, & Burgess of Seattle, WA.

These extensive comments deal primarily with what has become a serious environmental emergency for the Colville Tribes -- the accumulation of contaminated sediments in Lake Roosevelt within and upstream from the Colville Reservation. Changes in levels of Lake Roosevelt affect the movement of these contaminated sediments and increase the likelihood that tribal members and tribal natural resources, as well as the general public and public resources will be exposed to increased levels of a variety of extremely harmful contaminants. All of the action agencies, particularly BOR as the operator of Grand Coulee Dam and Lake Roosevelt, have a duty under the National Environmental Policy Act (NEPA) and the federal trust responsibility to the Colville Tribes to fully investigate and analyze potential serious impacts to human health and the Reservation environment that will result from changes in drawdowns of Lake Roosevelt.

Tragically, the action agencies have not performed investigations that could have been done in the 1995 System Operation Review EIS with information that was available at that time, information that the agencies were aware of at that time. In the past five years, substantial new information has come to light, much of it as a result of efforts by the Colville Tribes with some support from EPA Region X. The enclosed comments present that information.

The new information on significant impacts is so substantial that the Tribes believes a Supplemental EIS for the 1995 SOR/EIS would be necessary even if the action agencies were not obliged to consider changes in Lake Roosevelt drawdown patterns pursuant to the BIOP. In any event, under 40 CFR 1506. 1, the action agencies are prohibited from implementing any changes in Lake Roosevelt drawdown patterns unless and until a Supplemental EIS has been completed. Because this situation has reached the level of a genuine emergency, and because the action agencies have disregarded its significance for far too long, the Tribes requests that you respond within thirty days as to your intentions to undertake appropriate NEPA analysis.

In addition, I have also enclosed additional comments in bullet form regarding other fisheries and recreational enterprise concerns that are applicable not only to the BIOP, but also to aspects of the All-H process. We reserve the right to comment further as warranted depending on your responses and on the development of further information.

Thank you for your consideration of this matter which is of the most critical importance to the health and welfare of the Colville Tribes and its members. If you have any questions or comments, please contact Gary Passmore, Director of Environmental Trust, (509) 634-2426, Joe Peone, Director of Fish and Wildlife, (509)634-2110, or Steve Suagee, Reservation Attorney, (509) 634-2384; they will be able to respond or put you and your staff in touch with other staff, consultants, and special counsel as appropriate. Also please feel free to contact me directly.

Donna Darm, William McDonald, Judi Johansen, and Gen. Carl Strock  
September 29, 2000  
Re: Colville Tribes' Comments on BIOP and All-H Paper  
Page 3

Sincerely,

Colleen F. Cawston, Chairperson  
Colville Business Council

Enclosures

cc: Tim Fields, USEPA, Washington, D.  
Chuck Finley, USEPA, Region X  
Colville Business Council  
Gary Passmore, Environmental Trust  
Joe Peone, Fish and Wildlife  
Steve Suagee, Office of Reservation Attorney  
Richard DuBey, Special Environmental Counsel

Confederated Tribes of the Colville Reservation  
P.O. Box 150  
Nespelem, WA 99155

Comments on the July 27, 2000  
Draft Biological Opinion

on

Operation of the Federal Columbia River Power System  
including the Juvenile Fish Transportation  
and the Bureau of Reclamation's 31 Projects,  
Including the Entire Columbia Basin Project

Submitted to:

National Marine Fisheries Service,  
Consulting Agency

and

U.S. Bureau of Reclamation,  
U.S. Army Corps of Engineers,  
Bonneville Power Administration,  
Action Agencies

September 29, 2000

# 1. Introduction

The Confederated Tribes of the Colville Reservation ("Colville Tribes" or "the Tribes") submits these comments on the Draft Biological Opinion on "Operation of the Federal Columbia River Power System including the Juvenile Fish Transportation Program and the Bureau of Reclamation's 31 Projects, Including the Entire Columbia Basin Project" (BIOP), issued July 27, 2000, by the National Marine Fisheries Service (NMFS). The BIOP proposes changes in drawdowns of Lake Roosevelt, behind Grand Coulee Dam within and upstream from the Colville Reservation, as well as other changes in the operation of the federal hydro-power system throughout the Columbia River basin. Such changes include, but are not necessarily limited to: shifting of flood control to Grand Coulee Dam; a revised trigger for dry year determinations and associated summer-time drawdowns that would occur with much greater frequency; increased likelihood of greater drawdowns during the month of August.

Operational changes resulting from the final BIOP will be implemented by the Bureau of Reclamation (BOR), U.S. Army Corps of Engineers ("COE" or "the Corps"), and the Bonneville Power Administration (BPA). These three agencies operate the Columbia River system in accordance with the Pacific Northwest Coordination Agreement (PNCA). Collectively these three agencies are referred to herein, as they frequently are, as the "Action Agencies." These comments are directed to the Action Agencies, as well as to NMFS, because they will take the actions to implement the BIOP, which will have impacts on the environment of Lake Roosevelt and the Colville Reservation and on the rights and interests of the Colville Tribes, and which will trigger a duty to comply with the requirements of the National Environmental Policy Act (NEPA). In particular, the actions of the Bureau of Reclamation, the operator of Grand Coulee Dam, will have a major impact on the Tribes. The primary purpose of these comments is to emphasize that *under NEPA, further changes in Lake Roosevelt drawdowns may not be implemented unless and until their impacts have been analyzed in a new or Supplemental EIS and mitigation has been provided for.* 40 C.F.R. § 1501.6.

## 1.1 The Essential Problem: Contaminated Sediments in Lake Roosevelt

These comments deal largely with issues associated with contaminated sediments that have accumulated and continue to accumulate in Lake Roosevelt. Movement of these contaminated sediments through the environment has obvious and potentially significant impacts to the health of tribal members and other residents of the Reservation, and to natural resources in which the Colville Tribes holds special federal reserved rights that the Action Agencies are obliged to protect under a fiduciary standard of care. Changes in lake levels, including any new drawdown regimes implemented pursuant to the BIOP, affect how contamination impacts the environment.

The Action Agencies have in a very cursory way been aware of this situation for years, as acknowledged in the November 1995 Columbia River System Operation Review Final Environmental Impact Statement ("SOR/EIS" or "SOR"). See for example SOR Appendix T at

T-61, Response T12-16 to Comment T12, *discussed* in Section 5.1.7 below and attached hereto in Exhibit A, *acknowledging* the availability of some information on this issue as well as the failure to review it in the SOR. Unfortunately, the SOR and the agencies have failed to comprehend the magnitude or the urgency of the situation, and despite the availability of a wealth of information have utterly failed to provide any analysis of potentially serious adverse impacts. As a result, the agencies have failed to incorporate any mitigation practices into changes in Lake Roosevelt operations.

Contamination problems in Lake Roosevelt have reached the level of an environmental emergency. It is time for the action agencies to appreciate this situation for what it is and take steps to study and remediate the emergency. As noted above, further changes in Lake Roosevelt drawdowns may not be implemented unless and until their impacts have been analyzed in a new or Supplemental EIS and mitigation has been provided for. The Colville Tribes has been doing all it can, virtually alone and with extremely limited resources, to bring this situation to the attention of responsible agencies. While the Tribes has developed a productive relationship with the Environmental Protection Agency (EPA), which as resulted in a preliminary assessment of damage to natural resources resulting from contaminants in lake Roosevelt, there has been no indication that the action agencies understand the scope of the problems and the urgent need for study and remediation. .

Even a cursory review of available information reveals the following:

- ◆ Evidence is overwhelming that millions of tons of contaminants have found their way into the waters, the sediments and onto the shorelines of Lake Roosevelt.
- ◆ Contaminants include extremely toxic, carcinogenic and some bioaccumulative compounds, such as dioxins, PCBs, furans and heavy metals.
- ◆ Because of principles of sediment transport, changes in levels and retention times in Lake Roosevelt are likely to increase the amount of contaminated materials to which people and organisms are exposed.
- ◆ Exposures to dioxins, PCBs, furans and heavy metals result in a significantly higher risk of adverse effects to people and biological resources.

## **1.2 Tribal Rights and Federal Responsibilities Relative to Lake Roosevelt**

Since time immemorial, the constituent bands of the Colville Tribes have lived in the upper Columbia basin, and have cherished and wisely utilized its natural resources. Fishing has always been (and continues to be) central to the cultural way of life and very identity of the Colville Tribes. In 1872, the Colville Reservation was established pursuant to Executive Order. At that time the Reservation embraced all the lands within the United States between the Columbia and Okanogan Rivers (and included the rivers themselves), in excess of three million acres. Despite the comparatively large expanse of the 1872 Reservation, many Indians of the Tribes' constituent bands were forced to begin relocating from off-reservation lands, homesteads, and hunting, fishing, and gathering areas that their people had utilized for centuries.

In 1891, the Tribes entered into an Agreement with the United States, ceding the 1.5 million acre North Half for one dollar per acre but reserving hunting, gathering, fishing, and water rights thereon, including within the North Half portions of the Columbia and Okanogan Rivers. The U.S. Supreme Court has affirmed the validity and vitality of the Tribes' reserved rights in the former North Half. *Antoine v. Washington*, 420 U.S. 194 (1975). The greatest single impact to the Tribes' fishing rights, and to its cultural way of life, has been the construction of Grand Coulee Dam, which along with Chief Joseph Dam, has blocked the passage of anadromous fish to over 150 river miles of the Columbia where they had once been available for harvest. In particular, the once-abundant multi-tribal fishery Kettle Falls has been eliminated.

Today the Tribes actively regulates the hunting and fishing activities of its members and the general public within the Reservation, and of its members on the ceded North Half. Within the Reservation, including along Lake Roosevelt, the Tribes also regulates and manages fish, wildlife, and water resources, and recreation and land use, in cooperation with other state and federal agencies adjacent to, and in some instances within, the Reservation.

Grand Coulee Dam and the lower portion of Lake Roosevelt lie within the Colville Reservation, and the upper lake is entirely within the ceded North Half where the Tribes holds reserved rights under the 1891 Agreement. Several tribal communities are located adjacent to Lake Roosevelt. Tribal members continue to utilize the Okanogan River and the 5-mile stretch of the Columbia below Chief Joseph Dam (the only on-reservation portion of the Columbia where salmon still occur) for anadromous fish harvest, but have become increasingly reliant on the resident fisheries in Lake Roosevelt for subsistence fishing. Reservoir operations that affect the movement of contaminants in and around Lake Roosevelt clearly affect the health and welfare of tribal communities, and clearly affect natural resources in which the Tribes hold reserved property rights under federal law. In addition, as the Tribes has attempted to diversify its economic base, it has developed several houseboat enterprises on Lake Roosevelt, the viability of which is directly affected by changes in lake levels and associated exposure to contaminants. In general, the environmental emergency resulting from the presence of contaminated sediments in Lake Roosevelt may have been less immediately obvious than the abrupt blockage of anadromous fish passage caused by Grand Coulee Dam, but it presents threats to the Colville Tribes (and imposes obligations on the action agencies) that are hardly less compelling.

The federal agencies have a trust responsibility to the Tribes and its members to study the risks to public health and the environment, and to the Tribes' recreational enterprises and cultural resources, that will result from changes in operations at Grand Coulee Dam. Studies must be conducted to adequately characterize and consider the risk to human and environmental health in Lake Roosevelt. Without such analysis, the Action Agencies breach their obligations IRL NEPA and the trust responsibility. And because the Columbia River and the resources of Lake Roosevelt are also prized internationally and regionally, the agencies would also violate their duty to protect the welfare of the general public and the environment.

### **1.3 Organization of These Comments**

Section 2 of these comments presents a brief description of the contamination present in Lake Roosevelt as shown in historical studies. Section 3 presents concepts of sediment transport and its potential effect on contaminant distribution in Lake Roosevelt. Section 4 presents information regarding the risk associated with the contaminants in the context of their toxicity, carcinogenicity, and bioavailability. Section 5 catalogs the references to Lake Roosevelt contaminants found in the 1995 SOR/EIS and presents some of the many additional relevant sources of information on contaminants in Lake Roosevelt. Section 6 outlines NEPA and related legal requirements and how the Action Agencies have failed to meet them. Section 7 provides recommendations for what studies should be undertaken to adequately address important potential impacts of operational changes.

## **2. Presence and Distribution of Contaminants in Lake Roosevelt**

A substantial body of scientific data is available on presence and distribution of toxic constituents in Lake Roosevelt. In fact, in Appendix M of the SOR EIS, the agencies state that studies of Lake Roosevelt pollution are more accurate and plentiful than in any other reach of the Columbia River. Key findings of scientific studies evaluating the effects of contamination in the Columbia River upstream of Grand Coulee Dam are presented in chronological order below.

It is revealing to compare the chronology of Lake Roosevelt studies with publication of the SOR EIS. The EIS was published in late 1995. Of the nine studies excerpted below published prior to 1995, none are cited in the Water Quality, the Air Quality, or the Resident Fish appendices of the SOR EIS. Ironically, the SOR agencies cite studies of other reaches of the Columbia River system with publication dates as recent as 1995.

- ◆ Elevated cadmium concentrations in Lake Roosevelt (LR) large-scale suckers (Lowe and others, 1985)
- ◆ Elevated lead and cadmium concentrations in LR fish fillets (Hopkins and others, 1985)
- ◆ Elevated concentrations of dioxins and furans in LR whitefish (Mah and others, 1989)
- ◆ Mercury concentrations in walleye exceed Health Protection Branch guideline (Norecol, 1989)
- ◆ Elevated concentrations of arsenic, copper, iron, manganese, zinc in LIZ bed sediments (Johnson and others, 1980; 1990)



- ◆ Elevated concentrations of dioxins and furans in LR sportfish (Johnson and others, 1991)
- ◆ Compared to nationwide results, furans in LR fish in 75-100 percentile range (Johnson and others, 1991, Serdar, 1993)
- ◆ Health and Welfare Canada fish consumption health advisory (Kirkpatrick, 1992)
- ◆ Elevated concentrations of metals (arsenic, cadmium, copper, lead, mercury, zinc) in Upper Columbia River bed sediments (Bortleson and others, 1992)
- ◆ Adverse impact to LR benthic communities due to metals contamination in bed sediments and loss of physical habitat (Bortleson and others, 1992)
- ◆ Lethal and sublethal effects on benthic community in laboratory toxicity tests of bed sediments (Bortleson and others, 1992)
- ◆ Dioxins and furans present in suspended sediment (Bortleson and others, 1992)
- ◆ Suspended sediments are source of contamination in LR bed sediments (Bortleson and others, 1992)
- ◆ Major and minor tributaries to LR contribute arsenic, copper, lead, mercury, zinc to LR riverine sediment (Bortleson and others, 1992)
- ◆ Organochlorine compounds (dioxins, furans, PCBs) in Lake Roosevelt fish tissue (USEPA, 1994)
- ◆ Elevated mercury concentration in Lake Roosevelt fish (USGS, 1994)
- ◆ Washington Department of Health fish consumption advisory (Erwin and Munn, 1997)
- ◆ LeRoi (Northport) smelter ranked "most serious" by Washington Department of Ecology (V~TDOE, 1999)
- ◆ Columbia River Segments RM 597-745 warrant Site Investigation under CERCLA (USEPA, 2000)

### **3. Dam Operations Significantly Affect Contaminant Transport**

Basic principles of hydrodynamics and sediment transport demonstrate that changes in Lake Roosevelt's level and residence times can have important effects on the concentration and distribution of contaminants in its water and sediments, and on its shorelines. These contaminants include dioxin, furans, PCBs and metals. Changes in operations can also increase contaminant exposure to people and environment. These issues are addressed in this section.

#### **3.1 Transport mechanisms into Lake Roosevelt**

Both the Columbia River and tributaries in the watershed transport large quantities of contaminated sediments into Lake Roosevelt. The two main mechanisms of transport of sediments are bed load and suspended load. Bed load consists of solids that move very near the bottom of the river, as close as a few millimeters from the bottom, and are mostly made up of fine-to-coarse sands and gravel. Suspended load consists of solids that are suspended in the water of the rivers feeding Lake Roosevelt. Usually, these solids are fine particles; however, in

times of heavy flow they can include larger particles. For the reasons outlined below, suspended load is a more important mechanism of transporting contaminants into Lake Roosevelt than bed load.

Suspended load entering Lake Roosevelt includes silt and clay. In swiftly moving water these fine particles move along at almost the velocity of the river's currents. Thus, large volumes of sediments can be introduced to Lake Roosevelt from long distances through this mechanism. Fine particles are of most interest as they are the most likely to have contamination attached. (Environmental Modeling, 1996) Contamination also enters Lake Roosevelt through the transport of particles from slag heaps associated with historic mining operations found on the main stem and tributaries of the Columbia. Slag contains metals that are found in abnormally high concentrations in the sediments and on the shorelines of Lake Roosevelt. Thus, particles in suspended load are an important source of all contaminants coming to the Lake.

### **3.2 Contaminant transport associated with dam operations**

Once sediments reach the lake, the importance of the various sediment transport mechanisms change. With lower velocities of currents in the lake, bed loading becomes even more important than suspended loading. Moreover, another factor is introduced - dam operations that quickly and dramatically change the level of Lake Roosevelt, thereby changing the retention time of the impounded waters. Simple logic dictates that changes in dam operations are likely to affect the following-

- ◆ Distribution of contaminants in the lake and downstream,
- ◆ Total area affected by unacceptably high contamination levels,
- ◆ Exposures to humans and biological resources in the lake and downstream.

Water entering a reservoir from a river loses velocity, which allows many particles suspended in the river to settle to the bed of the lake or on its shorelines. This process is sedimentation. In Lake Roosevelt this mechanism allows particles and their corresponding contaminants - dioxin, furans, PCBs and metals - to settle. Although contaminated suspended sediments settle in shallow water along the shore and on the bottom of a reservoir, they may not remain there.

When Lake Roosevelt is made to rise or fall, the dynamics of sediment transport are affected and other phenomena become important as well. These are effects on the banks: exposure, destabilization and erosion. In addition, there are changes in sedimentation, scour, resuspension and desorption, which are transport mechanisms that affect the fluxes of contaminants in and around Lake Roosevelt.

#### **3.2.1 Bank destabilization and erosion**

With dam operations, reservoir levels rise and fall more than typically seen in a lacustrine environment. In a non-reservoir environment, lake banks tend to be stabilized through the growth of plant life and the mechanics associated with a relatively constant lake level. In Lake Roosevelt, however, the rising and falling of the reservoir associated with changes in dam operations has a dramatic destabilizing effect on banks. The banks of Lake Roosevelt are more subject to erosion and contaminated materials are far more likely to slough off and resuspend in Lake Roosevelt than is the case with a naturally constant lake level. As Lake Roosevelt's levels rise, loose sediments containing contaminants are likely to be resuspended in the water column through wave action and carried to another location in the reservoir by the currents. These phenomena are well documented throughout the SOR. The SOR states (p. 4-45) "pool level fluctuation increases the area exposed to shoreline wave erosion and surface erosion." It continues (p. 4-61) "the greater the drawdown in elevation and duration, the greater the sediment transport." In addition, it states (p. 4-148) "fluctuating reservoir levels can cause landslides and erosion along reservoir shores." These are just a few examples of the many references contained in the SOR.

Moreover, drawdowns cause contaminated materials to be exposed to the air, which allows winds to disperse them more widely, exposing humans living and recreating along the banks of the river. This is more than a theoretical risk for Lake Roosevelt. Sediments eroded by wind have had a visible impact upon local air quality by introducing particulate matter and contaminants into the air. In photographs of the Lake Roosevelt area, the Tribes have documented dust storms that have dropped visibility to less than a quarter of a mile in areas along lake. The concentration of contaminants in the dust blown from shorelines has never been studied as a part of system operation reviews or by anyone else. However, given the types of contaminants found on Lake Roosevelt shorelines and in sediments, this mode of dispersal is a concern and should have been studied as a part of an EIS.

In summary, the drawdowns of the SOR's system operating strategy preferred alternative (SOS PA) will only serve to exacerbate effects of bank destabilization, resuspension and wind erosion. Moreover, the larger the drawdown, the bigger the area of bank and potentially contaminated area exposed to water and wind erosion. None of these issues has been addressed by the Action Agencies to date with respect to Lake Roosevelt. Consequently, as explained in Section 6 below, the Action Agencies must prepare a new or Supplemental EIS regarding impacts of alternative drawdown scenarios before significant changes in those drawdowns may occur.

### **3.2.2 Changes in sedimentation and contaminant deposition patterns**

When dam operations change Lake Roosevelt's level, they affect retention times for water in the lake. When retention times are changed, changes in currents in Lake Roosevelt occur. As the SOR discusses (p. 4-148), lower reservoir levels mean that water entering the reservoir moves at a higher velocity and picks up additional sediment. Changes in current velocities can

have an effect on sedimentation patterns in the lake. As yet, the cause and effect relationship between changes in retention times and sedimentation patterns for contaminated sediments is not well understood; it has not been analyzed by the Action Agencies. Analysis of this issue would require the application of a numerical model. Although the Action Agencies have used numerical models to investigate sediment transport in the overall Columbia River system, they have not adequately done so for Lake Roosevelt. Based on established principles of sediment dynamics, the mechanisms for how dam operations would affect contaminant patterns are as follows.

Sediment dynamics dictate that coarse materials, such as sands and gravel, settle out before fine materials, such as silt and clay-size particles. This is due to the increased settling velocity of coarse materials, which are thicker and denser than fine particles. Silt and clay-size particles settle at a velocity that is proportional to the difference between the water and particle densities and the square of the particle diameter. This velocity is much lower than that of coarse materials. Because contaminants adsorb mostly to fine particles; it is the fine particles that are of the greatest interest to us. (Environmental Modeling, 1996)

These principles dictate that sediments (fine and coarse) settle more quickly at higher lake levels because water velocities are slower than they are when the lake level is lower. Conversely, lower lake levels produce faster currents. With faster currents, there is possibility of transport of sediments longer distances down the lake. Because contaminants are most likely to be attached to the fine particles, there is a real concern that contaminant depositional patterns are affected measurably by dam operations as fine particles are sensitive to changes in currents. Thus, the links between lake levels, currents and contaminant depositional patterns in Lake Roosevelt should be addressed by the Action Agencies. An extensive numerical model, which is validated and calibrated for Lake Roosevelt, should be used to consider in a systematic way how changes in operations would affect contaminant concentrations and distribution in the lake and on the shorelines.

### **3.2.3 Scour, Resuspension, and Desorption**

Changes in currents can also affect two other mechanisms that help dictate contaminant concentrations and distributions - scour and resuspension. More specifically, the mechanisms are as follows.

Changes in releases at the dam affect the amount of water drawn through the dam. With larger releases, currents/eddies are created that may scour and resuspend sediments from the bottom and the shorelines near the dam. Contaminant-laden fine sediment particles are especially susceptible to this phenomenon. In addition, fine sediment particles that are still suspended will be drawn through with the water and end up below the dam. Because most contaminants adsorb to these fine sediments (fine silts and clay-size particles), these are the most dangerous to be relocating and/or resuspending. (Environmental Modeling, 1996)

Similarly, dam operations increase current velocities in the lake, which result in greater scour and resuspension. As a result, dam operations may affect scour and resuspension rates in places removed from the dam. As noted above, the Action Agencies have not adequately considered these issues for Lake Roosevelt in any of their reports pertaining to system operations and impacts to the environment.

Scouting and resuspension of sediments can also produce another affect that increases the likelihood of transport of contaminants in the system - desorption. When sediments are scoured and resuspended in the water column, there is a greater chance that contaminants will become detached or desorped from the particulate on which they are riding. Contaminants free in the water column can be carried by waves and the currents unencumbered by the weight of the particle. As a result, they can be even more widely dispersed than when absorbed to the fine particle. Moreover, desorption also make them more "bioavailable" to more organisms than when they are bound in the sediments. In short, they become a bigger hazard than when bound in the sediment.

### **3.3 Potential impacts to contaminant concentrations and distribution are within the reasonable range of impacts that should be considered before changing dam operations.**

The issues discussed above are more than theoretical ones. The changes proposed for the system are significant. They will have a profound affect on the hydrology and may have a significant effect on the distribution and concentrations of contaminants in the lake and the areas surrounding it. The SOR states (p. 4-232) that under SOS PA, summer pool elevations would be from 6 to 9 feet below full pool. As summer levels under previous operating conditions have been at or near full pool, SOS PA would result in the exposure of a significant amount of bank. These newly exposed areas may contain contaminated sediments, which would be subject to erosion. This erosion could significantly affect air and water quality as described in the preceding sections. Changes to lake levels and retention times would also affect sediment velocity and displacement, which can also affect water quality as discussed in preceding sections.

## **4. Potential Impacts to Human Health and Natural Resources**

Changes in contaminant distribution and concentrations in the Lake Roosevelt system are a serious human health and natural resource protection concern. First, changes in contaminant distribution may cause different receptors to become exposed to the contamination. These receptors may be more sensitive to the contaminants than others, which would increase the risk. Second, the stirring up of the contaminants and transport of suspended contaminants may result in more extensive exposure as the contamination is smeared across a larger area. Third, the location of contaminants may affect their bioavailability. Humans and large fish are much more likely to take up contaminants that are in the water column, either dissolved in water or absorbed

on suspended sediments, than those bound in bed sediments. This change in exposure and bioavailability would drastically affect the risk posed by the contamination.

As we discuss in this section, contaminants found in Lake Roosevelt include those that are highly toxic and carcinogenic. Moreover, contaminants levels are in excess of those used by a number of agencies as regulatory action levels. Thus, it is extremely important to understand how dam operations affect the distribution and concentrations of contaminants.

#### **4.1 Toxicity and Carcinogenicity**

As described in Section 1, contaminants found in Lake Roosevelt include dioxins, furans, PCBs, and heavy metals including mercury, lead, arsenic and cadmium. Many of these contaminants are highly toxic and carcinogenic. The toxicity and carcinogenicity information presented here demonstrates the gravity of possible effects from exposure to Lake Roosevelt's contaminated sediments. To discount the disturbance of these sediments could put human and ecological health at serious risk. The following information on toxicity and carcinogenicity comes from EPA's Integrated Risk Information System (EPA, IRIS Website), EPA's Unified Air Toxics Website (EPA, UATW Website) and EPA's Draft Reassessment of Dioxin. (2000)

Dioxins and furans occur in many different forms in nature so a discussion of the toxicity or carcinogenicity of "dioxins" or "furans" is difficult. The toxicity of dioxins is most often discussed in terms of the most dangerous compound: 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). EPA recently reevaluated the status of dioxins and determined that "TCDD should be characterized as a 'human carcinogen' and that related compounds (other dioxin-like CDDs and CDFs, and dioxin-like PCBs) should be considered 'likely' to present a cancer hazard to humans." (EPA, 2000) CDDs are chlorinated dibenzodioxins, which is an alternative, generic term for dioxins; CDFs are chlorinated dibenzofurans, which is an alternative, generic term for furans. The document also states that dioxins have the potential to cause a variety of undesirable, non-cancer effects in humans. EPA's Draft Reassessment of Dioxin represents the most comprehensive statement by a federal agency as to the carcinogenicity of dioxins and furans.

EPA has studied other contaminants present in Lake Roosevelt more extensively. EPA uses a class system to categorize the carcinogenicity of contaminants. Arsenic is listed as a Class A, human carcinogen of high carcinogenic hazard. Cadmium is a Class B 1, probable human carcinogen of medium carcinogenic hazard. Lead and PCBs are Class B2, probable human carcinogens. Mercury is found in several forms in nature: elemental mercury, inorganic mercury, and organic mercury, which is most often in the form of methyl mercury. Methyl mercury is formed after elemental mercury is methylated, which often occurs when microorganisms in the sediments of lakes and rivers are exposed to elemental mercury. Inorganic mercury and methyl mercury are Class C, possible human carcinogens; and elemental mercury is a Class D, not classifiable as to human carcinogenicity. (EPA, IRIS Website; EPA UATW Website)

Serious toxic effects are associated with these contaminants as well. Arsenic exposure is extremely hazardous whether it be inhalation or oral exposure. Acute inhalation exposure causes gastrointestinal effects, hemolysis, and central and peripheral nervous system disorders. Longterm inhalation results in skin and mucous membrane irritation. Chronic oral exposure results in gastrointestinal effects, anemia, peripheral neuropathy, skin lesions, and liver or kidney damage. Cadmium exposure is nearly as toxic, causing serious effects on the lungs when inhaled and serious, long-term effects on the kidneys when inhaled or ingested orally. Developmental effects of cadmium exposure have been shown in animals, but human tests are inconclusive. (EPA, IRIS Website; EPA UATW Website)

Brain and kidney damage as well as gastrointestinal distress are exhibited after only acute exposure to lead. Chronic exposure to lead results in effects on the blood, central nervous system, blood pressure, kidneys, Vitamin D metabolism and reproductive functions. Children and developing fetuses can also be seriously affected by lead exposure. Animal tests have shown that exposure to PCBs causes cancer as well as numerous serious other effects including effects on the immune, reproductive, nervous and endocrine systems. Studies in humans provide supportive evidence for potential carcinogenic and non-carcinogenic effects of PCBs. Acute exposure to elemental mercury and methyl mercury causes serious central nervous systems effects including hallucinations, delirium, blindness, deafness as well as effects to the gastrointestinal tract and respiratory system. Long-term exposure to elemental and methyl mercury results in additional effects on the nervous system, such as including irritability, tremor, blurred vision, and speech difficulties among others. Methyl mercury also causes significant developmental effects on developing fetuses. Chronic exposure to inorganic mercury results in kidney damage. (EPA, IRIS Website; EPA UATW Website)

Dioxins, furans, PCBs, and metals are also toxic to freshwater aquatic organisms, such as fish and shellfish, and to wildlife. For some chemicals, particularly metals, the toxicity to fish or wildlife can be greater than the toxicity to humans. Chemicals present in freshwater systems, such as Lake Roosevelt, can display a broad spectrum of toxicity because of the numerous different species of aquatic organisms and wildlife that may be exposed. The types of organisms that are known to be affected by sediment and surface water contamination include benthic microorganisms, benthic invertebrates, shellfish, zooplankton, phytoplankton, emergent and floating aquatic vegetation, benthic and pelagic fish, and higher trophic wildlife that consumes contaminated aquatic resources. Each of these types of ecological receptors can be at risk for adverse health effects or community and population effects from exposures to contaminated sediments. (Burton 1992)

The potential adverse effects on fish and wildlife are included in an EPA assessment of dioxin and furan toxicity. EPA states that the limited available data indicate that fish, particularly salmonid sac fry, and mink are among the most sensitive animals to dioxins and related compounds (EPA 1994). Adverse effects of dioxins to salmonid fry include blue-sac disease where effects are seen at tissue concentrations in the part-per-trillion range.

Reproductive effects are observed at very low exposures in freshwater fish and wildlife, which indicates the potential for impacts on community and population resources.

Among metals known to be present in Lake Roosevelt sediments, mercury and cadmium present some of the greatest toxicity and potential for adverse impacts to fish and wildlife. (EPA 1997; Eisler 1985, 1987) Both metals are not known to be biologically essential or beneficial. For cadmium, freshwater biota are the most sensitive species, with concentrations in the part-per-trillion level causing mortality to invertebrates and sublethal effects, such as reproductive impairment. (Eisler 1985) As mentioned above, mercury is usually present in the aquatic environment in the form of methyl mercury. The toxicity of methyl mercury to aquatic organisms is very high and has been observed in concentrations in freshwater in the part-per-trillion range. Methyl mercury's toxicity to waterfowl, such as the mallard duck, has been shown to result in reproductive effects at very low concentrations in benthic invertebrate food items.

#### **4.2 Bioaccumulation and biomagnification**

Dioxins, furans, PCBs and mercury are some of the most dangerous and highly bioaccumulative toxins in the world. This means they are easily accumulated in the tissues of organisms. In fact, EPA has included dioxins, furans, PCBs and mercury in its priority persistent, bioaccumulative, and toxic (PBT) pollutants initiative, which aims to reduce the use of chemicals that are toxic, persist in the environment and bioaccumulate in food chains. (EPA, PBT Website) In addition, these contaminants have a strong biomagnification potential, which means that the total body burden of contaminants increases with increasing trophic levels in an ecosystem. To illustrate this more simply, fish eating contaminated prey items create a body burden of dioxin, big fish that eat a lot of little fish show even higher body burdens of dioxin that is not broken down in normal body processes. These even more contaminated fish, if consumed in quantity by humans, can create a risk to humans. In fact, this cycle is playing itself out at Lake Roosevelt in that dioxins, furans, PCBs and mercury have been shown to be present in various fish in the lake. As a result of mercury contamination detected in USGS' 1992 study, the Washington State Department of Health issued a fish consumption advisory for Lake Roosevelt. (Erwin and Munn, 1997)

Dioxins and furans accumulate in aquatic receptors because of their lipophilicity (chemical attraction to fatty tissues) and low rates of chemical and biological degradation. The chemical natures of dioxins and furans result in their preference for binding to sediment and suspended particles. The tendency to transfer from sediment and accumulate in fish tissue, or bioaccumulate, which is measured by biota-sediment accumulation factor (BSAF), is among the highest of all contaminants for TCDD.

Similar to dioxins and furans, PCBs accumulate in tissue of aquatic organisms and wildlife because of their lipophilicity and resistance to degradation. Also similar to dioxins and furans, PCBs are most toxic to young fish and fish eggs and to mink (Eisler, 1986; EPA, 1993).

The main toxic effect in mink is decreased reproductive success. Since otter respond to contaminants in much the same way as mink, exposures of otter to contaminants contained in



aquatic food items, such as fish or shellfish, can result in impacts to otter populations. In addition, methyl mercury can bioconcentrate in aquatic organisms and be biomagnified through food chains in a manner similar to lipophilic compounds, such as dioxins and PCBs.

### **4.3 Contaminant levels as compared to regulatory screening levels**

#### **4.3.1 Regulatory screening levels**

Numerous studies have been conducted to test the contamination of sediments, water and fish in Lake Roosevelt and the Upper Columbia River. When the information collected in these studies is compared to human health and ecological risk screening criteria, the risk associated with the contamination of sediments and water in Lake Roosevelt is demonstrated. FWS did this in 1982 and 1983 and determined that cadmium levels in Lake Roosevelt water exceeded levels set for the protection of aquatic life. (Bortleson, et al., 1994) For the purposes of this discussion, it is informative to apply several typical risk screening criteria to some of the data on Lake Roosevelt.

There are several criteria that can be compared to contaminant data for the purposes of estimating risk. These include the National Oceanic and Atmospheric Administration's (NOAA's) standards called effects range-low (ER-Ls) and effects range-medium (ER-Ms). NOAA developed these by using data it had previously collected around the country on contaminant concentrations and effects. This information was used to evaluate several of the common techniques used to establish screening criteria by testing their estimations of effects at different concentrations. The concentrations of contaminants that the various methods estimated to have biological effects were ranked by concentration. The lower tenth percentile concentration is the ER-L and the median concentration is the ER-M for each contaminant. (Jones et al., 1997)

The Florida Department of Environmental Protection (FDEP) has also developed screening criteria using a technique similar to NOAA's. FDEP's criteria are known as Threshold Effects Levels (TELs) and Probable Effects Levels (PELs). FDEP used NOAA's data as one set and data on concentrations of contaminants that produced no harmful biological effects as another set in its calculations. TEL is the geometric mean of the 15<sup>th</sup> percentile in NOAA's data set and the 50<sup>th</sup> percentile in the no effects data set. PEL is the geometric mean of the 50<sup>th</sup> percentile in NOAA's set and the 85<sup>th</sup> percentile in the no effects set. (Jones et al., 1997)

Other organizations including EPA Region IV and EPA's OSVVER have established screening criteria using NOAA's and FDEP's standards, which demonstrates the utility of these criteria for developing a rough estimate of risk. These standards have been developed for marine or estuarine environments but are often used in investigations of freshwater contamination.

Freshwater sediment screening criteria have been developed in a few instances, such as in the Great Lakes and Ontario as well as by EPA for nonionic organics. These criteria, however, are not as well accepted or as useful for the range of contaminants present at most sites including Lake Roosevelt and the Upper Columbia River. Further discussion of these and other sediment quality criteria can be found in Jones et al. (1997)

#### 4.3.2 Lake Roosevelt contaminant levels as compared to screening levels

In 1992, the US Geological Survey (USGS) conducted a study on the contamination of sediments in Lake Roosevelt and the Upper Columbia River. (Bortleson, et al., 1994) Bed and suspended sediment samples were collected throughout the area and analyzed for numerous metals and organic compounds. The results verify the risk to humans, fish and wildlife that feed and live near or in the lake. Lake Roosevelt bed sediments were tested in various locations for five heavy metals: arsenic, cadmium, lead, mercury and zinc. The averages were then calculated over all locations. When compared to common sediment quality screening criteria mentioned above, these averages demonstrate the substantial ecological risk associated with the sediments of Lake Roosevelt. The results are shown in Table 1.

**Table 1: Concentrations of Heavy Metals in Lake Roosevelt and Screening Criteria**

	Average Conc. In Lake Roosevelt	ER-L	ER-M	TEL	PEL
<b>Arsenic</b>	16	8.2	70	7.24	41.6
<b>Cadmium</b>	6.2	1.2	9.6	0.676	4.21
<b>Lead</b>	310	46.7	218	30.2	112
<b>Mercury</b>	1.3	0.15	0.71	0.13	0.696
<b>Zinc</b>	970	150	410	124	271

Bortleson, et al., 1994.

While this analysis provides a good rough estimation of the ecological risk posed by the contamination, only site specific screening criteria can be used to accurately determine risk. Site specific criteria take into account the background concentrations of the area and are tailored toward species that live in the area.

## 5. The SOR/EIS Merely Acknowledges Sediment Contamination, And Despite the Availability of a Wealth of Information, Fails to Analyze How Alternative Systems Operating Strategies Will Affect the Impacts of That Contamination on Human Health and the Environment

## **5.1EIS treatment of toxic contaminant issues in Lake Roosevelt**

The Action Agencies acknowledge the presence and sources of significant contaminants in Lake Roosevelt. The EIS does not address how Grand Coulee Dam operations or operational changes might effect those contaminants. The agencies' concede that consideration of SOS impact to Lake Roosevelt contaminants is appropriate but conclude consideration is not possible without more knowledge about contaminant source and transport. According to the Action Agencies, the Lake Roosevelt segment of the Columbia River does not have sufficient data as of 1995 to support an assessment of impacts related to operations.

The Action Agencies themselves conclude that the EIS does not adequately address toxic contaminant issues in Lake Roosevelt. In Appendix T, the Action Agencies concede that significant scientific data on contamination in Lake Roosevelt was not considered in the SOR even though the data was available and would have had an impact on EIS findings. See discussion below of Appendix T for insight into SOR agencies' rationalization for this oversight.

Portions of the SOR/EIS that relate to the question of whether adequate analysis was performed of SOS impacts to contaminants in Lake Roosevelt are presented in the following paragraphs. Excerpts from the SOR/EIS are also attached as Exhibit A to these comments.

### **5.1.1 Appendix M, Water Quality**

The Water Quality Appendix (Appendix M, p. 1-1) refers to the recent human health advisory instituted in the Columbia River Basin due to pesticides, PCBs and trace metals. This appendix (Appendix M, p. 2-22) also discusses the major sources of contamination of the river: the Celgar Pulp Mill near Castlegar, B.C. and the Cominco lead and zinc smelter in Trail, B.C. Sources of contamination of Lake Roosevelt in the United States are listed as including old and new mines, agriculture and logging. This section of the appendix (Appendix M, p. 2-22) goes even further:

Past and present studies indicate pollution from the Celgar Pulp Mill and Cominco Metals has been significant, especially heavy metals and trace elements. Studies showing dioxin and furans in fish also indicate a major problem area, but more studies must be conducted to determine the amount of dioxin and furans in the deeper sediments and how operation of the system may distribute the toxins into the food chain.

More accurate scientific studies have probably been conducted on this reach (reach 1, origination to Grand Coulee Dam) than any of the other reaches. More studies and a long term monitoring program need to be developed and conducted to complement the work already completed.

Although these references are certainly enough to demonstrate the danger of ignoring the effects of changing operations on this contamination, there are others. The Water Quality Appendix (Appendix M, p. 2-30) again states that the water quality problems of the Columbia River from Chief Joseph to the Canadian border includes contamination from metals, dioxins and

furans in Lake Roosevelt. In section 5, the appendix (Appendix M, p. 5-19) refers to water quality studies that should be given "high priority". It states

The absence or insufficiency of information has been the mean (sic) for shortcomings in this analysis. An improved understanding of whole river dynamics and processes is crucial to the formulation of solutions to current and future water quality problems.

Of particular interest is further knowledge on sources, causes, transport, fate, and effects of contaminants. This involves: 1) knowing the source(s) of contaminants available, how they behave, where they end up, and to what extent contaminants cause ecological problems; 2) simulating the benefits of water quality mitigative measures; and 3) making it possible for management to have the information needed to make good ecological decisions.

While additional extensive studies and research may come too late for those fish and wildlife species that are threatened, deriving and implementing solutions without the best available data is also equally risky. Indeed, the need to expedite remedial actions has never been questioned. The basic research cited above was all identified by water quality professionals, many of whom fully support expeditious management plans.

The presence of contaminants in Lake Roosevelt is clearly stated. Celgar's pulp mill and Cominco's Trail smelter are cited as major sources. Numerous smaller mining operations in the US are also contributors. Studies of Lake Roosevelt pollution are cited as more accurate and plentiful than in any other reach of the Columbia River, and no data gaps regarding trace metals or organics are evident. LR-specific recommendations are for "more studies and a long term monitoring program need to be developed and conducted to complement work already completed." System-wide recommendations call for additional studies to determine sources, causes, transport, fate, and effect of contaminants.

### **5.1.2 Appendix B, Air Quality**

The Air Quality Appendix (Appendix 13, p. 3-11) primarily focuses on PM10 from fugitive dust during water level fluctuations. Due to inadequate data, assessment of this potential was limited to the acknowledgment that it exists. The appendix does state the following about the potential hazards of wind erosion of exposed contaminated sediments:

Although airborne concentrations were not estimated, it may be concluded that the potential exists for air concentrations greater than ASILs (Acceptable Source Impact Levels), especially in the upper reaches of Lower Granite Reservoir and Lake Roosevelt. Based on sediment concentrations of these chemicals, there are several pollutants of concern, including arsenic and iron. The evaluation did not investigate whether the sediments would actually be exposed. A detailed analysis of wind-generated emissions and concentrations of hazardous and toxic air pollutants would require site-specific data, including sediment concentrations of the pollutants of concern in the areas where they will become exposed, the grain size distribution of sediments, the volatility of the pollutant versus the potential that the pollutant will remain attached to sediment particles, an evaluation of the smoothness of the exposed sediment surface to determine the roughness height, and representative meteorological data to conduct the dispersion analysis. These data are not currently available. If sediment concentrations of contaminants were large enough, and if the sediments were exposed during drafting, then high speed wind events could result in relatively high air concentrations of these contaminants and pose a potential risk to the health of lake-side residents and recreationists.

### **5.1.3 Appendix K, Resident Fish**

In the "comments" section, readers with an interest in the problem of contaminants in fish (and other organisms) as exacerbated by drawdowns are directed to Appendix M. No Lake Roosevelt-specific discussion of contaminants in fish was evident although general mention was made of health advisories on fish consumption in the Columbia River Basin.

### **5.1.4 Appendix J, Recreation**

SOR agencies acknowledge that industrial pollutants entering Lake Roosevelt from Canada have a direct effect on recreation. They conclude, however, that reservoir operations are not likely to affect water quality in Lake Roosevelt to the extent that recreational opportunities are impaired. See Appendix T for SOR agencies' position on scientific basis for decisions regarding water quality in Lake Roosevelt.

### **5.1.5 Appendix L, Soils, Geology, and Groundwater**

The reader is referred to Appendix M for discussion of the effect of reservoir operations on resuspension of contaminants. No discussion of Lake Roosevelt-specific issues. Reader is referred to Appendix B for discussion of the effect of reservoir operations on airborne contaminants due to exposure to wind. No discussion of Lake Roosevelt-specific issues.

### **5.1.6 Appendix O, Economic and Social Impact**

The Action Agencies acknowledge that the economic impact of contamination in Lake Roosevelt was not evaluated. Because the Water Quality Group's efforts concluded that none of the SOS alternatives would cause a violation of legal water quality standards, and the Action Agencies only evaluated economic impact if a standard was exceeded, no economic or social impacts were deemed significant enough to warrant consideration. See Appendix M for discussion of Lake Roosevelt water quality. See Appendix T for the Action Agencies' position on scientific basis for decisions regarding water quality in Lake Roosevelt.

### **5.1.7 Appendix T, Comments and Responses**

As alluded to in Appendices B, J, K, L, M, and O, the EIS does not address the impact of SOS alternatives on toxic contaminants in Lake Roosevelt. In response to comments that point out this deficiency, the SOR agencies state the scientific basis for their omission in Appendix T, "When sediment quality data were being collected, the USGS did not provide their Lake Roosevelt sediment contamination report (Open File Report 94-315) to the SOR Water Quality Work Group, nor did this information reside in the EPA STORET data base. This additional information would have enhanced the current HEC-5Q full-scale water quality model of the Columbia Snake River system." This response is indefensible in light of the fact that: 1) the referenced report was performed by the United States Geological Survey (USGS) in 1992,

three years prior to publication of the SOR and 2) a USGS water resources expert functioned as a preparer, technical advisor and reviewer of the water quality report portion of the SOR.

## **5.2 References and Materials Regarding Contamination Issue**

There are numerous sources that provide information on the toxicity of the contaminants present in Lake Roosevelt as well as the hazards posed by contaminated sediments. The following is a small list of these relevant publications. Given this wealth of information, it seems arbitrary and capricious of the Action Agencies to proceed with operational changes without considering the corresponding effects on the contaminated sediments of Lake Roosevelt.

Bortleson, G.C., et al. "Sediment-Quality Assessment of Franklin D. Roosevelt Lake and Upstream Reach of the Columbia River, Washington, 1992.". USGS *Open-File Report* 94-315, 1994.

Bucy, Lisa K. and William H. Funk. "Lake Roosevelt Management Plan." Prepared for Lake Roosevelt Water Quality Council, Aug. 1996.

DePinto, Joseph V., Wilbert Lick and John F. Paul, eds. *Transport and Transformation of Contaminants Near the Sediment-Water Interface*. Boca Raton: Lewis Publishers, 1994.

Derewetzky, Rene Forman, William H. Funk and Steve T.J. Juul. "Lake Franklin D. Roosevelt: Water Quality Retrospective Analysis." Prepared for Lake Roosevelt Water Quality Council, Nov. 1994.

Erwin, M.L. and M.D. Munn. "Are walleye from Lake Roosevelt contaminated with mercury?" USGS *Fact Sheet* FS-102-97, 1997.

McLaren, P. and D.I. Little. "The Effects of Sediment Transport on Contaminant Dispersal: An Example from Milford Haven." *Marine Pollution Bulletin*. Vol. 18, No. 11, 1987, pp. 586-594.

McLaren, Patrick and Donald Bowles. "The Effects of Sediment Transport on Grain-Size Distributions." *Journal of Sedimentary Petrology*. Vol. 55, No. 4, July 1985, pp. 457-470.

Munn, M.D., S.E. Cox and C.J. Dean. "Concentrations of mercury and other trace elements in walleye, smallmouth bass and rainbow trout in Franklin D. Roosevelt lake and the upper Columbia River, Washington, 1994." USGS *Open-File Report* 95-195, 1995.

Munn, M.D., and T.M. Short. "Spatial heterogeneity of mercury bioaccumulation by walleye in Franklin D. Roosevelt Lake and the Upper Columbia River, Washington." *Transactions of the American Fisheries Society*. Vol. 126, 1997.

Munn, M.D. "Contaminant trends in sport fish from Lake Roosevelt and the upper Columbia River, Washington, 1994 to 1998." *USGS Water-Resources Investigations Report 00-4024*, 2000.

Schnoor, Jerald L. *Environmental Modeling: Fate and Transport of Pollutants in Water, Air, and Soil*. New York: John Wiley & Sons, Inc., 1996.

Serdar, Dave. "Retrospective Analysis of Toxic Contaminants in Lake Roosevelt." Prepared for Lake Roosevelt Water Quality Council, Sep. 1993.

Serdar, Dave, Bill Yake and James Cubbage. "Contaminant Trends in Lake Roosevelt." Washington State Department of Ecology, Publication No. 94-185, Nov. 1994.

US Department of Health and Human Services. Registry of Toxic Effects of Chemical Substances (RTECS, online database). National Toxicology Information Program, National Library of Medicine, Bethesda, MD, 1993.

US Department of Health and Human Services. Hazardous Substances Data Bank (HSDB, online database). National Toxicology Information Program, National Library of Medicine, Bethesda, MD, 1993.

US EPA. "Assessment of Dioxins, Furans, and PCBs in Fish Tissue from Lake Roosevelt" Prepared by EVS Environmental Consultants. Region 10, Seattle, WA, 1998.

US EPA. Office of Air Quality Planning and Standards. *Unified Air Toxics Website*, <http://www.epa.gov/ttn/uatw/>.

US EPA. Office of Pollution Prevention and Toxics. *Persistent, Bioaccumulative, and Toxic (PBT) Chemicals Initiative*. <http://www.epa.gov/opptintr/pbU>.

US EPA. Office of Research and Development. "Dioxin: Scientific Highlights from Draft Reassessment (2000): Information Sheet 2". Jun. 2000.

US EPA. Office of Research and Development. National Center for Environmental Assessment. *Integrated Risk Information System (IRIS)*. <http://www.epa.gov/iris>.

Yake, Bill, Stacie Singleton and Karol Erickson. "Washington State Dioxin Source Assessment." Washington State Department of Ecology, Publication No. 98-320, July 1998.

## **6. The National Environmental Policy Act Mandates Preparation of a Supplemental Environmental Impact Statement for Lake Roosevelt Operations**

### **6.1 The Proposed Draw Down is Subject to the CEQ Administrative Injunction Provision of 40 CFR § 1506.1(a)**

The National Environmental Policy Act, 42 U.S.C. §4321 *et seq.*, ("NEPA") requires that an environmental impact statement ("EIS") be prepared for governmental proposals which are "major" federal actions that significantly affect the quality of the human environment. As this section will show, the Action Agencies have in the past, and plan in the future, to act contrary to federal law and policy to the grave danger of the members of the Confederated Tribes of the Colville Reservation and the non-member residents of Lake Roosevelt and the Upper Columbia Basin ("Lake Roosevelt Environment").

The Colville Tribes is profoundly disturbed that the Action Agencies have utterly failed to comply with the clear requirements of federal law. It is past time for compliance agency trust responsibilities and with NEPA, the wellspring of our national body of environmental jurisprudence. *Unless and until there is compliance with NEPA, "no action concerning the proposal shall be taken which would:*

- *Have an adverse environmental impact; or*
- *Limit the choice of reasonable alternatives."*

40 CFR § 1506. 1 (a)(1)-(2).

In effect, this provision of the CEQ regulations, which are binding on each of the three Action Agencies, imposes an absolute and immediate administrative stay on the proposed draw down of Lake Roosevelt by B OR.

### **6.2 NEPA Applies to Proposed Changes to the System Operating Strategy (SOS) and Requires An Environmental Impact Statement**

The provisions requiring preparation of EIS's for major federal actions are set forth in Section 102 of NEPA and provide:

(2) all agencies of the Federal Government shall-

(C) include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on

-

- i. the environmental impact of the proposed action,



- ii. any adverse environmental effects which cannot be avoided should the proposal be implemented,
- iii. alternatives to the proposed action,
- iv. the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and
- v. any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

42 U.S.C. §4332. This provision of NEPA forms the basis for the Action Agencies statutory requirement to prepare an EIS for proposed changes to the System Operating Strategy ("SOS") as supported by the System Operation Review ("SOR").

There is no question that the proposed draw down actions and other changes to the SOP constitutes a "major" Federal action. The Action Agencies have acknowledged in numerous documents that the SOR and ultimate changes to the System Operation Strategy are "major" Federal actions. As such, NEPA applies and an EIS is required.

#### **6.2.1 An EIS Is Required to Fully Inform the Public and Agencies to Support a Well Considered Decision on the SOR and SOS Revisions**

The primary function of an EIS is to ensure that the proponent of a major federal action, such as the Action Agencies in this instance, make a fully informed and well considered decision. See, *Friends of the Clearwater v. Dombeck*, 2000 WL 1154279 (9<sup>th</sup> Cir. Idaho); *Sierra Club v. United States Army Corps of Engineers*, 701 F. 2d. 1011 (2<sup>nd</sup> Cir. 1983). The EIS requirement serves a dual role: first it ensures adequate consideration of the relevant information; and second, it guarantees that the relevant information will be made available to other public agencies and the public so that they may also share their comments and concerns as invited participants in both the decision-making process and in the manner in which that decision is implemented. *Friends of the Clearwater*, Id. at 3. Compliance with NEPA is intended to ensure that the agency will not act on incomplete information "only to regret its decision after it is too late to correct." Id.

The judicial standard of review that is applicable to the NEPA decision-making process is the "rule of reason." The "rule of reason" is not an exhaustive standard requiring discussion of all possible details bearing on the proposed action. See, *Sierra Club*, 701 F.2d at 1030 n. 18, and *County of Suffolk v. Sec. Of Interior*, 562 F.2d 1368, 1383 (2<sup>nd</sup> Cir. 1977). Rather, the rule of reason demands that the Action Agencies make a good faith effort to compile and present all significant environmental factors and alternatives to the decision-maker so that he or she may fully consider them in order to make an informed decision. This informal decision is the product of having balanced the risks of harm to the environment against the benefits to be derived from the proposed action and includes making a reasoned choice between alternatives. Id.

If the Action Agencies continue to rely upon the existing SOR and the current record to support the proposed changes to the SOS, the Action Agencies will violate the express provisions of NEPA as well as the other applicable laws set forth below. Furthermore, should the bold arrogance of the Action Agencies outweigh their mandate to lawfully serve the public they will be casting aside underlying purposes and goals established by Congress in enacting or A because:

- The environmental information underlying the existing SOR is incomplete and fatally flawed;
- Substantial new information has been developed since compilation of the current SOR which, at a minimum, requires preparation and consideration of a supplemental EIS; and,
- The proposed actions conflict with and may violate Federal, State and Tribal environmental laws and regulations some of which were not in existence or had not yet been determined to be applicable (e.g. CERCLA) when the existing SOR was compiled and issued.

Finally, if the Action Agencies proceed without a new or supplemental EIS, they will not only make an uninformed, ill-reasoned decision subject to judicial nullification but also deny the interested and affected public will be denied their lawful light to fully participate in the decision-making process on an informed basis.

### **6.3 The Action Agencies' SOR Fails to Satisfy NEPA Requirements and Cannot Be Relied Upon for the Proposed New Actions**

Documentation compiled for the SOR relating to the contamination in and about Lake Roosevelt cannot possibly satisfy the environmental impact review obligations of the action agencies under NEPA. The Columbia River System Operation Review Final EIS ("SOR/EIS") was completed in November 1995. The SOR/EIS was flawed at the outset as it was not an adequate EIS because it ignored and/or inadequately considered significant, relevant environmental information concerning the potential adverse effects of contaminated Lake Roosevelt sediments in its initial compilation of information. See, *County of Suffolk, supra*

The Action Agencies who prepared the SOR/EIS knew of the USGS sediment studies yet did not include the USGS studies as a part of their consideration of potential environmental impacts associated with the draw down provisions of the SOS. In particular, on December 9, 1994, the Colville Tribes submitted a comment concerning the SOR Draft EIS identifying the contaminated sediment issues for Lake Roosevelt. The Action Agencies' response stated:

When sediment quality data were being collected, the USGS did not provide their Lake Roosevelt sediment contamination report (Open File Report 94-315) to the SOR Water Quality Work Group, nor did this information reside in EPA STORET database. *This additional information would have enhanced the*

*current HEC-5Q full scale water quality model of the Columbia Snake River system. See, Comment T12-16 and Response (emphasis added), included in Exhibit A hereto.*

Accordingly, the Action Agencies had full knowledge of the existence of the contaminated sediment studies and acknowledged that they were not only relevant but that the evaluation of the (omitted) studies by the Action Agencies would have informed and enhanced the decision making process. Applicable regulations require that the Action Agencies take steps to acquire additional information if it is relevant to the decision making process and the costs of obtaining it are not exorbitant. 40 C.F.R. § 1502.22.

The Action Agencies not only acknowledged that information concerning contaminated sediments was omitted but also refused to obtain the readily available information from their sister agency, the USGS. The costs were not exorbitant and the reports were readily available in an Open File. Nonetheless, the Action Agencies decided to willfully ignore this significant, relevant information.

*In 1995, the Action Agencies arbitrarily dismissed the relevance of the information with the following broad, unsupported conclusory statement that:*

*. . . [S]ystem operations do not significantly affect the input contaminants to Lake Roosevelt. Id. (Emphasis added)*

In reaching this conclusion, the Action Agencies were wrong six years ago and they are still wrong today.

This single sentence response highlights the critical flaw of the SOR/EIS - how could the Action Agencies reach this conclusion without the benefit of a complete administrative recall including the underlying sediment studies. In addition, the response fails to comprehend the scope and import of the sediment issue. The contaminated sediment issue is not limited to the "input" of contaminants to the Lake Roosevelt complex. Rather, the issue is more importantly related to the redistribution of existing contamination resulting from releases and releases due to systems operations draw-downs.

It is apparent that the Action Agencies' refusal to acknowledge the relevance of the sediment contamination was not well reasoned or adequately considered. This alone is sufficient to show that the SOR/EIS does not even come close to complying with the NEPA. *County of Suffolk, supra* (Where the information presented to the reviewing agency is ignored or inadequately dealt with, serious questions arise concerning compliance with NEPA and good faith compilation of the necessary environmental information).

The intentional omission of readily available, pertinent and valuable information concerning the environmental consequences of the contaminated sediments renders the existing SOR/EIS inadequate. The Action Agencies must prepare a new EIS so that the decision-maker and the public have the benefit of an administrative record that includes a good faith compilation of significant environmental information. If the record is flawed, it is simply not possible for the decision-maker to have a full understanding of the environmental

issues that would result in an informed, reasoned decision on the SOR and proposed new draw downs.

#### **6.4 Significant New Information Requires Preparation of a Supplemental EIS**

The CEQ Guidelines, applicable to all executive agencies such as the Action Agencies, mandate the preparation of a supplement to either a draft or final EIS if there are "significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts." C.F.R. §1502.9(c)(1)(ii). There is no discretion. There is no alternative. If there is significant new information, the Action Agencies must prepare a supplement to the EIS. Moreover, CEQ provisions require that EISs more than five years old should be carefully reexamined to determine whether preparation of an EIS supplement is mandated. *See, Council on Environmental Quality 40 Most Asked Questions Concerning CEQs National Environmental Policy Act Regulations*. 46 Fed. Reg. 18026, 18036 (1981) As set forth in Sections I through 4 above, there is a wealth of significant new information relating to the environmental impacts of the contaminated sediments and the proposed draw-down. Section 5.2 above provides the Action Agencies with a list of references and source materials, and Section 7 below details the types of additional studies that are needed. Consequently, there is no doubt that a supplemental EIS is required.

Assuming *arguendo* that the existing SOR/EIS is sufficient (which we vigorously contest), a supplemental EIS is nevertheless required. The Action Agencies acknowledged the existence of the sediment studies and readily admitted their relevance to the decision-making process. In 1994, the Confederated Tribes commented on the contaminated sediment issues and informed the Action Agencies that:

*Before any significant changes to dam operations are proposed it would be prudent to fully evaluate these impacts [of contaminated sediments]. The USGS and Department of Health studies should be funded, completed and peer reviewed and public hearings should be held to disseminate the findings. To date no funding has been identified for this work. I regret that absent environmental health officer and environmental coordinator we could not more fully review the EIS. By January, both of those positions should be filled. T-61, Appendix T to SOR/EIS, also attached in Exhibit A hereto.*

The Action Agencies cannot now ignore the significant new data that has been developed in the intervening six years since they were advised by the Tribes of the need to develop the contaminated sediment information. Significant work has been done over the last six years by EPA and others and additional significant information is now available. The Action Agencies are required to prepare a supplemental EIS to consider this new information.

##### **6.4.1 The Action Agencies Have No Discretion - The Applicable Standards Mandate Preparation of a Supplemental EIS**

The Rule of Reason also governs the preparation of a supplemental EIS. See, *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 373 (1989). The rule of reason states that an agency need not supplement an EIS every time new information becomes available. *Id.* at 374. Rather the application of the rule of reason turns on the value of the new information in the decision making process. *Id.* While the mere passage of time is not sufficient in and of itself to require supplementation:

*The agency must be alert to new information which may alter the results of its original environmental analysis, and continue to take a "hard look at the environmental effects of [its] planned action, even after a proposal has received initial approval."*

\* \* \*

*"If there remains a major Federal action to occur and the new information is sufficient to show that the remaining action will affect the quality of the human environment in a significant manner or to a significant extent not already considered, a supplemental EIS must be prepared. "*

*Friends of the Clearwater*, 2000 WL 1154279 at \*3 (9<sup>th</sup> Cir. 2000); quoting with approval *Marsh*; *supra* at 374 (citation omitted) (emphasis added).

Here there is no question that the new information concerning the contaminated sediments is significant to the decision-making process. The Tribes' 1994 comment to the Action Agencies highlights the importance of the new information: "*Be re any significant changes to dam operations are proposed it would be prudent (for the Action Agencies) to fully evaluate these impacts [of contaminated sediments]*". See, Response to Comment T12, included in Exhibit A hereto. This is not an instance of needing to be alert to new information. Rather, the Action Agencies had been informed of the need and central importance of the contaminated sediment information.

The Action Agencies have now proposed changes to dam operations. They cannot, in good faith, now take the position that the contaminated sediments issues are irrelevant. Without preparation of a supplemental EIS to encompass this significant, new environmental information, the Action Agencies cannot satisfy the rule of reason requirement for a "good faith compilation" of all environmental issues. Absent a supplemental EIS, any decision will be fatally flawed, without substantial basis and subject to judicial review and nullification. A supplemental EIS must be prepared.

As set forth above in Section 4, there is substantial, significant new information~ evidences that the contaminated sediments will be further dispersed through water action and airborne particulates. Among the most telling, significant new information concerning the sediments which at a minimum require consideration is:

- The United States Environmental Protection Agency is investigating the sediments to determine whether there has been a release of hazardous substances under the Superfund statute,
- Documented levels in the sediment of arsenic - a Class A, known human carcinogen of high carcinogenic hazards;
- Documented levels in the sediment of lead - a known toxin and probable human carcinogen with significant risk of brain and kidney damage
- Documented levels in the sediment of cadmium - a Class B I probable human carcinogen of medium carcinogenic hazard.
- Documented levels in the sediment of mercury - a bioaccumulative Class C possible human carcinogen;
- Documented levels of furans, dioxins and PCBs in the sediments and fish - all of which are toxic and PCBs are probable human carcinogens;
- Washington Department of Health's issuance of consumption advisory concerning Lake Roosevelt sportfish due to documented, elevated levels of mercury in the fish tissue a warning for human consumption of fish due to elevated levels of mercury in the fish tissue; and
- Exposure of contaminated sediments to the air as a result of increased draw-down may result in the potential redistribution of highly toxic and carcinogenic contaminants through airborne particulates.

Furthermore, U.S. EPA's investigation of the Lake Roosevelt Environment, based on the presence of contaminated sediments, demonstrates the importance of the human health and environmental quality issues that need to be considered as a part of the administrative record for the proposed draw-down by the Action Agencies. The Action Agencies refusal to consider the contaminated sediment issues is in direct conflict with the position of EPA that the contaminated sediments present a potentially significant environmental issue and thus require the commitment of public funds to conduct an investigation pursuant to Superfund.

Any decision made in the midst of these conflicting positions without a supplement EIS will engender heightened judicial scrutiny and skepticism that the decision fulfilled NEPA requirements. *Sierra Club*, 701 F.2d at 1030 (Where the responsible agency ignores the conflicting views of a sister agency having pertinent expertise, substantial skepticism arises concerning whether the decision had substantial basis in fact.)

There is no valid basis upon which the Action Agencies may rely that justifies their decision to ignore the need to supplement the EIS. The new information is significant and

necessary to a good faith compilation of the environmental issues so that the decision-maker and interested public can full consider the environmental issues.

i

The Colville Tribes is committed to protecting the national treasure referred to here as the Lake Roosevelt Environment. The commitment is deep and the Tribes will not allow their concerns to once again be ignored by the Action Agencies. Be advised that the Tribes have discussed their concerns with members of the Washington State Congressional Delegation and with the Regional and Headquarters offices of EPA, BIA and BOR. Further, the Tribes are prepared to exercise the 40 CFR § 1504.1 CEQ referral process if necessary and to seek such further judicial relief as may be necessary.

## **6.5 A New or Supplemental EIS is Required to Assess Potential Conflicts with or Violation of Federal, State and Tribal Environmental Laws**

A Supplemental EIS is also mandated by the potential conflict of the proposed action with Federal, State and Tribal environmental laws, rules, regulations and policies. CEQ regulations governing the content and discussion required in an EIS mandates that the possible conflict with Federal, State and Tribal laws and policies must be addressed:

*This section [environmental consequences] forms the scientific and analytic basis for the comparisons under [the alternatives section]... It shall include discussions of.*

*(c) Possible conflicts between the proposed action and the objectives of Federal, regional, State and local (and in the case of a reservation, Indian Tribe) land use plans, policies and controls for the area concerned. 40 C.F.R. § 1502.16.*

The proposed action to revise the SOS and implement increased draw-downs presents a potential conflict with not only Federal, State and Tribal land use plans, policies and controls but also a potential conflict with, and violation of, Federal, State and Tribal environmental laws, rules and regulations. A supplemental EIS must be prepared to include information on these potential conflicts and violations of law so as to fully inform the decision-maker and public of the environmental consequences of the proposed action.

### **6.5.1 The Proposed Action May Conflict With and Violate Federal and Tribal Clean Air Act Requirements**

As set forth above, the proposed increase in draw-down levels will expose hundreds of miles of bank with contaminated sediments. The action of the sun, air and wind combine to create dust storms laden with contaminated, fugitive particulate emissions from the banks. The threat to human health and the environment from these contaminated dust storms has already been acknowledged by the U.S. EPA's contractor conducting the Preliminary Assessment on Lake Roosevelt for CERCLA listing.

The potential environmental consequences of the contaminated fugitive emissions are also recognized by U.S. EPA's recently proposed Tribal Implementation Plan under the Clean

Air Act. The proposed Tribal Implementation Plan includes provisions which regulate fugitive dust/particulate emissions on Indian Lands. The bed and banks of Lake Roosevelt are unquestionably Indian Lands and will be subject to the fugitive particulate requirements and standards. These standards were not in place or proposed when the SOR/EIS was prepared.

The proposed action will result in significant fugitive emissions of contaminated sediments. As such, a supplemental EIS should be prepared to address the potential conflict of the proposed action with the fugitive particulate standards and the potential mitigative actions that can be taken to address the fugitive particulate standards application to the exposure of contaminated sediments. *See* CAA, 42 USC § 7401 et seq.; 63 Fed.Reg. 7254 et seq. (February 12, 1998); *Arizona Public Service Co. v. EPA*, Nos. 98-1196, 1203, 1207, 1208 (D.C. Cir. May 5, 2000); EPA Region X Tribal Rules Project at § 49.126 (July 28, 2000 draft).

#### **6.5.2 The Proposed Action May Conflict with the Federal CERCLA and RCRA Statutes, Washington Model Toxics Control Act And Tribal Hazardous Substance Law**

The exposure of contaminated sediments and changes in water levels contemplated in the proposed action results in the redistribution and disposal contaminated sediments within the Lake Roosevelt Environment. This disposal of contaminated sediments which may be classified as pollutants, hazardous wastes and/or hazardous substances may give rise to violations and liability under the Comprehensive Environmental Response Compensation and Liability Act ("CERCLA"), 42 U.S.C. §9601 et. seq., the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. §6901 to 6922k, Washington Model Toxics Control Act ("MTCA"), RCW 70.105D *et seq.* and the Colville Tribal Hazardous Substances Control Act ("HSCA").

The Action Agencies cannot ignore the potential statutory liability arising from AM proposed action. EPA has accepted the Tribe's Petition for a Preliminary Assessment of the Lake Roosevelt Environment under CERCLA. The preliminary assessment process is the first step in designating the Lake Roosevelt Environment as a "Superfund" site under CERCLA. The Action Agencies are current operators of the Lake Roosevelt Environment. This designation will carry with it potential liability for the current operators of Lake Roosevelt for all response costs incurred to address the historic and on-going disposal of hazardous substances. CERCLA imposes joint and several liabilities for all response incurred to address the release of hazardous substances. 42 U.S.C. §9607(a).

CERCLA further provides EPA with the authority to issue unilateral administrative orders to compel potentially responsible parties to undertake environmental response actions at their own cost. 42 U.S.C. §9706. The preliminary assessment is on-going and has documented the release of hazardous substances in segments of the Lake Roosevelt Environment. The potentially significant CERCLA implications of the proposed action must be set forth in a supplemental EIS.



Similarly, the proposed action may expose the Action Agencies to potential liability under MTCA which is Washington's state level equivalent to CERCLA and also under the HSCA - the Tribal equivalent. Both MTCA and HSCA impose joint and several liability on the current operator a facility at which hazardous substances have been or are being disposed. Furthermore, HSCA was not in existence during the preparation of the existing SOR and must be addressed in a supplemental EIS.

RCRA is the Federal statute that governs the generation, treatment, storage, transport and disposal of solid and hazardous wastes. RCRA also provides that a civil action for injunctive relief(including environmental remediation) and civil penalties maybe brought against any person including Federal agencies that:

has contributed or is contributing to the past or present  
handling, storage, treatment, transportation or disposal of any  
solid or hazardous waste which may present an imminent and  
substantial endangerment to human health or the environment.  
42 U.S.C. §6972

The proposed action will result in the further disposal and redistribution of contaminated sediments which may be hazardous and/or solid wastes. As such, the proposed action exposes the Action Agencies to injunctive relief and civil penalties under RCRA.

i

At a minimum, the potential CERCLA, MTCA, HSCA and RCRA liability resulting from the proposed action should be discussed in a supplemental EIS to fully inform the decision-maker of the potential environmental ramifications of the proposed action and more fully consider the alternatives to the proposed action.

### **6.5.3 Tribal Shoreline Management Act**

Section 1502.16 of the CEQ regulations at 40 **CFR requires** that the Action Agencies consider the environmental consequences of the proposed action, as well as the cumulative consequence of agency actions. In particular, possible conflicts of the proposed action with the objectives of Tribal land use plans, policies and controls for the areas of concern should also be considered. 40 CFR § 1502.16(c).

Accordingly, the Action Agencies must, in their EIS, consider the consistency of the proposed action with the policies of the Colville Tribal Hazardous Substance Control Act, which, among other things, states that:

*The main purpose of this Act is to address the existing  
emergency and provide remedial law for the cleanup of  
hazardous substances sites and to prevent the creation of future  
hazards due to improper disposal of hazardous substances on or  
into the Reservation Environment. Colville Hazardous  
Substances Control Act at Section 2(4).*

Furthermore, the Shoreline Management Plan of the Confederated Tribes of the Colville Reservation adopted on November 3, 1998, implements the holistic goals set by the Tribal Business Council through the enactment of Resolution 1996-23 on January 18, 1996. In short, the Tribal land use policy that the Action Agencies need to be aware of, and act in a manner consistent with is as follows:

The Tribal Council declares that the interest of all of the people shall be paramount in the management of shoreline areas within the exterior boundaries of the Reservation. The Tribes, in adopting regulations for shorelines management, shall give preference to uses which:

- ◆ *Preserve, protect, enhance and **restore the natural character** and ecology of shoreline areas, as well as its natural and cultural resources;*
- ◆ Result in long term over short-term ecological and economic benefit;
- ◆ Encourage appropriate access to the shorelines of the Reservation; and
- ◆ Increase and enhance tribal members' opportunities for traditional cultural activities in shoreline areas in accordance with Tribal and federal law.

*As this policy is implemented, opportunities to enjoy the physical and aesthetic qualities of natural shoreline areas of the Reservation shall be preserved to the greatest extent feasible. To this end, uses shall be preferred, which are consistent with the control of pollution and prevention of damage to the natural environment, or are unique to or dependent upon use of the Reservation's shoreline areas. Alterations of the natural condition of shoreline areas on the reservation, in those limited instances when authorized, shall be given priority for use activities and development that benefit the Tribes as a whole.*

## **6.6 The Federal Trust Responsibility to the Colville Tribes and the Reserved Property Rights of the Tribes Require a Supplemental EIS**

As noted in the Introduction, since aboriginal times, the constituent bands of the Colville Tribes have lived in the upper Columbia basin and have cherished and wisely utilized its natural resources. Fishing has always been (and continues to be) central to the cultural way of life and very identity of the Colville Tribes. In 1872, the Colville Reservation was established pursuant to Executive Order. A principal purpose for establishment of the Reservation was to secure access to traditional fisheries for the Tribes and its members. *Confederated Tribes of the Colville Reservation v. Walton*, 647 F.2d 42, 48 (9th Cir. 1980) ("*Walton*").

When established in 1872, the Reservation embraced all the lands within the United States between the Columbia and Okanogan Rivers (and included the rivers themselves), in excess of three million acres. Despite the comparatively large expanse of the 1872 Reservation, many Indians of the Tribes' constituent bands were forced to begin relocating from off-reservation lands, homesteads, and hunting, fishing, and gathering areas that their people had utilized for centuries. *Walton*, 647 F.2d at 48 and 45, n. 2.

In 1891, the Tribes entered into an Agreement with the United States, ceding the 1.5 million acre North Half for one dollar per acre. Article 6 of the 1891 Agreement reserved hunting, gathering, fishing, and water rights thereon, including within the North Half portions of the Columbia and Okanogan Rivers, which rights were under Article 6 "...not [to] be taken away or in anywise abridged." *Antoine v. Washington*, 420 U.S. 194, 196, n.4. (1975) ("*Antoine*") (emphasis added). The U.S. Supreme Court's decision in *Antoine* generally affirmed the validity and vitality of the Tribes' reserved rights in the former North Half.

The greatest single impact to the Tribes' fishing rights, and to its cultural way of life, has been the construction of Grand Coulee Dam, which along with Chief Joseph Dam, has blocked the passage of anadromous fish to over 150 river miles of the Columbia where they had once been available for harvest. In particular, the once-abundant multi-tribal fishery at Kettle Falls has been eliminated.

Today the Tribes actively regulates the hunting and fishing activities of its members and the general public within the Reservation, and of its members on the ceded North Half. Within the Reservation, including along Lake Roosevelt, the Tribes also regulates and manages fish, wildlife, and water resources, and recreation and land use, in cooperation with other state and federal agencies adjacent to, and in some instances within, the Reservation.

Grand Coulee Dam and the lower portion of Lake Roosevelt lie within the Colville Reservation, and the upper lake is entirely within the ceded North Half where the Tribes holds reserved rights under the 1891 Agreement. Several tribal communities are located adjacent to Lake Roosevelt. Tribal members continue to utilize the Okanogan River and the 5-mile stretch of the Columbia below Chief Joseph Dam (the only on-reservation portion of the Columbia where salmon still occur) for anadromous fish harvest, but have become increasingly reliant on the resident fisheries in Lake Roosevelt for subsistence fishing. Reservoir operations that affect the movement of contaminants in and around Lake Roosevelt clearly affect the health and welfare of tribal communities, and clearly affect natural resources in which the Tribes hold reserved property rights under federal law. In addition, as the Tribes have tried to diversify its economic base, it has developed several houseboat enterprises on Lake Roosevelt, the viability of which is directly affected by changes in lake levels and associated exposure to contaminants. In general, the environmental emergency resulting from the presence of contaminated sediments in Lake Roosevelt may have been less immediately obvious than the abrupt blockage of anadromous fish passage caused by Grand Coulee Dam, but it presents threats to the Colville Tribes (and imposes obligations on the action agencies) that are hardly less compelling.

The Tribes owns much of the lands within the Reservation that are adjacent to lake Roosevelt and affected by exposure to contaminated sediments. The Tribes also hold fishing

rights within Lake Roosevelt, both within Reservation boundaries and on the ceded former North Half portion. The Tribes' rights in Lake Roosevelt under the 1872 Executive Order and under the 1891 Agreement on the ceded North Half are vested property rights within the meaning of the Fifth Amendment to the U.S. Constitution. *Walton*, 647 F.2d at 48. See generally *Menominee Tribe of Indians v. U.S.*, 391 U.S. 404, 413 (1968).

The federal agencies have a trust responsibility to the Tribes and its members to protect its reserved property rights, and to study the risks to public health and the environment, and to the Tribes' recreational enterprises and cultural resources, which will result from changes in operations at Grand Coulee Dam. Studies must be conducted to adequately characterize and consider the risk to human and environmental health in Lake Roosevelt. Without such analysis, the Action Agencies breach their obligations under NEPA and the trust responsibility.

The Tribes strongly contends that under the facts of this situation, the agencies have an independent, affirmative duty under the trust responsibility that is not necessarily satisfied by the environmental review in the SOR/EIS (which is inadequate under NEPA as well). It is possible in certain limited situations, not applicable here, to interpret the recent decision in *Morongo Band of Mission Indians v. Federal Aviation Administration*, 161 F.3d 569, 573-74 (9th Cir. 1998), as standing for the proposition that compliance with NEPA entails compliance with the trust responsibility. NO such application of *Morongo* would be possible in this instance: NEPA is a vehicle for the consideration of environmental impacts and the relationship of those impacts to substantive legal requirements. *Morongo* does not stand for the proposition that an agency may ignore substantive legal rights or standards that would be affected by a major action. Failure to analyze whether predicted impacts are a violation of rights or legal standards is potentially a violation of NEPA. Where, as here, the rights in question are the reserved rights of an Indian tribe, which are not to be in any way abridged, *Antoine*, 420 U.S. at 206 (citing Article 6 of the 1891 Agreement), the action agencies must specifically investigate how changes in drawdown regimes will impact the Tribes' rights.

Moreover, to the extent that compliance with NEPA does constitute compliance with the trust responsibility (which it does not in this case), it necessarily follows that failure to comply with NEPA entails a failure to comply with the trust responsibility. Because the action agencies have not complied with NEPA in this case, they have also not complied with their trust responsibility to the Colville Tribes.

## **6.7 Environmental Justice Implications Require a Supplemental EIS**

Executive Order 12898 signed by President Clinton on February 11, 1994 requires the Department of the Interior and its Bureau of Reclamation to "the greatest extent practicable" make achieving environmental justice a part of its mission. Section 6-606 of the Executive Order specifically states that it applies equally to Native American programs and directs the Department of Interior to coordinate with and implement steps to be taken pursuant to the Order to address federally recognized Indian Tribes.

The Action Agencies are in violation of the Executive Order in that the failure to undertake an adequate EIS or supplemental EIS ignores the disproportionate adverse environmental effects the proposed federal action will have on the members of the Confederated Tribes of the Colville Reservation. The existing and significant new information reveals that the sediments in the Lake Roosevelt environment are contaminated with numerous carcinogenic and toxic substances which, moreover, these contaminated sediments pose a significant threat to both human health and environmental quality. The proposed draw down will expose over 400 miles of these contaminated sediments to drying and wind-blown redistribution in, on, and around the Colville Reservation.

The disproportionate environmental impacts of implementing the proposed federal action, with full knowledge of the risks presented and in the absence of adequate environmental information to determine the risks to the members of the Confederated Tribes of the Colville Reservation, is on its face discriminatory under Title VI of the 1964 Civil Rights Act. 42 U.S.C. § 2000d *et seq.* By electing to not even consider the environmental issues associated with the proposed federal action by means of an adequate and comprehensive EIS or supplemental EIS, the Action Agencies remain ignorant and the Tribes are effectively eluded from meaningful participation in the decision making process.

The discriminatory effect of the proposed federal action is the Tribes' disproportionate risk of exposure to the contaminated sediments. Department of Interior regulations prohibit such discriminatory effects and impacts. See, 43 C.F.R. § 17.3. In the absence of an adequate EIS or supplemental EIS, there is no way to fully understand the consequences of the proposed action and thus, no way to determine what mitigative measures may be required to reduce or eliminate the discriminatory impact of the proposed draw-downs and resulting disparate impacts.

The refusal of the Action Agencies to undertake an adequate EIS or supplemental EIS, in the face of the substantial environmental information evidencing a potentially significant adverse, disparate environmental impact on the Confederated Tribes is clear evidence that the protections afforded all Americans, including Native Americans, under the 1964 Civil Rights Act have been violated. An adequate EIS or supplemental EIS is mandated to ensure adequate protection and consideration of the Tribes constitutionally guaranteed civil rights and Treaty rights.

## **7. Studies Needed to Show Effects, or Lack Thereof, of Operational Changes on Contaminated Sediments of Lake Roosevelt**

There are a number of studies that should be performed as part of an EIS to consider the impacts of changes in dam operations on the public health and welfare. Many appropriate studies were outlined in the SOR itself as presented in section 5. 1. As outlined below, additional studies that should be conducted as part of an EIS feed into a risk assessment, which is an important tool to determine the direct and indirect impacts of changes in system operations.

A risk assessment is conducted to determine the likelihood of adverse effects from exposure to contamination and can be conducted for both human and ecological health. The two major parts of an ecological risk assessment are the characterization of effects and characterization of exposure. These help provide the focus for the three phases of the assessment: problem formulation, analysis and risk characterization. (EPA, 1998) These three phases are not distinct; that is, aspects of each are being conducted at the same time. The phases are fairly self-explanatory. First, the available information is collected and a plan of analysis is formulated. Next, analysis is conducted whereby exposure is measured, analyzed and profiled along with the measurement of effects on species. Finally, a risk estimation and description is completed to make the results of the assessment understandable and useful. In the analysis phase, contamination data is compared to screening criteria to determine if the concentrations are large enough to damage the ecological health of the area.

A human health risk assessment is similar, but has the advantage of the existence of more information on toxicity and exposure to chemicals. The process of conducting a human health risk assessment involves the identification of potential chemicals of concern, an assessment of exposure and an evaluation of toxicity. The information gleaned from this process is then used to estimate the risk to the human population. There are limitations to this process when it is applied to Tribal populations, which do not follow the lifestyle upon which the human health screening criteria are based. For example, Tribal populations near Lake Roosevelt use the area for subsistence purposes, but human health screening criteria that would be used in this area only account for the lifestyle of the typical American. Typical Americans do not ingest as much local, contaminated material or have as much exposure to contaminants as members of the Tribal population. Therefore, typical human health screening criteria may underestimate the risks to Tribal populations.

A substantial amount of data is needed for human health and ecological risk assessments. The existing data on sediment and water quality in Lake Roosevelt is fairly extensive but is not sufficient to support an ecological or human health risk assessment. The following types of technical information and activities are suggested for further studies to expand the current knowledge of the contamination. The studies can be broken down into three main categories: sediment characteristics and transport, ecological health and human health.

### **7.1 Sediment characteristics and transport studies**

- ◆ *Sediment loads, water loads to the lake, history of sediment contamination, background concentrations.* Data gaps related to these characteristics should be filled.
- ◆ *Chemical concentrations in sediments:* Although the USGS is proposing to conduct studies of chemical concentrations in sediments, the study will not include measurements of dioxins and furans in sediments. Concentrations of dioxins and furans have not decreased over time in whitefish (USGS 2000), so they should be included in sediment studies and a full suite of congeners should be analyzed. Analysis of PCBs by congener should be performed and is

essential for estimating risks from human exposures to sediments during recreation and by uptake into fish tissue.

- ◆ *Sediment transport:* Studies are needed to provide additional information on fluxes of contaminants to the sediment of Lake Roosevelt. These studies should determine how sediments are moving in the lake, which can shed additional light on contaminant movement in the lake. Specifically, a sediment trend analysis has been shown in other studies to identify sediment movement useful for source identification. (McLaren, 1987)

## **7.2 Ecological health studies**

- ◆ *Sportfish chemical concentrations:* Contaminants in sportfish should be adequately characterized for the purposes of performing a human health risk assessment. The full suite of dioxin and furan congeners as well as the full suite of PCB congeners should be included.
- ◆ *Effects on fish health:* Detailed fish health studies should be performed including fish avoidance studies (Woodward et al. 1997) as well as more typical bioassay effects endpoints. Studies by Woodward et al. (1994) have documented adverse effects of environmental conditions and chemicals in rivers and lakes contaminated with mining wastes. Similar studies that are tailored to Lake Roosevelt should be conducted. The effect of the combined presence of chemicals in water, sediment and food items has not been studied at Lake Roosevelt. Fish toxicity studies should be considered that determine whether fish are adversely affected by the combination of chemicals in surface water, sediment and food items present in Lake Roosevelt, as described in Woodward et al. (1994)
- ◆ *Food sources/benthic ecology:* Food sources for local fish consist primarily of invertebrates. Impacts to sediment invertebrates in the lake have been studied to a limited extent. Further studies of benthic communities in the lake are needed for an ecological risk assessment. Sufficient benthic toxicity studies and benthic community structure studies should be conducted, and all studies should have sufficient oversight to ensure that samples are adequate for the determination of risk and injury. Studies should be performed using the sediment quality triad approach (Kemble et al 1994, Canfield et al. 1994) to determine whether sediments are impacted and what may be related to those impacts.
- ◆ *Fish populations:* Studies to determine if fish populations are typical for the lake should be performed. These should document whether or not populations are at the holding capacity of the lake. This can be accomplished by performing habitat studies and by comparison with appropriate reference water bodies.

- ◆ *Contaminant exposures to wildlife:* Risks to wildlife other than fish and benthos can be assessed through food chain modeling using data in sediment and water. A more accurate assessment of risks would entail additional measurements of contaminants in foods items, such as whole bodies of fish rather than in fillets that are used for human health risk assessment. Any fish tissue studies should include whole body analyses for use in the ecological risk assessment. In addition, the analysis of shellfish, if any are present, may be more critical for wildlife exposures than for human exposures. Analyses of contaminants in shellfish should be conducted for the ecological risk assessment.
- ◆ *Wildlife habitat and populations:* The availability of wildlife habitat in the study area needs to be better characterized for the ecological risk assessment and for future determination of whether populations may be impacted. A wildlife habitat and population survey should be included to determine whether wildlife has been impacted. The survey can focus on those receptors deemed highest potential exposure and those deemed of highest value, both culturally and economically.

### 7.3 Human health studies

Parameters used to quantify human exposures to contaminants in Lake Roosevelt would typically be borrowed from existing studies documented in the 1997 EPA *Exposure Factors Handbook* volumes. These parameters may include:

- Time spent in various recreational activities that may expose someone to contaminated lake sediments and surface water,
- Whether contaminated sediments may be moved from the lake to residential areas,
- Amount of fish consumed from Lake Roosevelt on a daily basis averaged over a person's exposure time,
- Amount of shellfish, if any, consumed, and
- Amount of consumption of any other wild collected food items that may grow in contaminated sediments, such as wild berries or greens.

The parameter values found in EPA's *Exposure Factors Handbook* should be reviewed to determine if they are appropriate to the population of potential exposure at Lake Roosevelt. An exposure survey should be conducted to quantify these and other parameters to determine sitespecific potential exposures to contaminants of local residents as well as visitors to Lake Roosevelt.

## 8. Conclusion

Based on the foregoing, it should be abundantly clear that there are potentially very significant and very serious human health and environmental impacts associated with the presence of contaminated sediments in Lake Roosevelt, and that changes in drawdown patterns have had and will continue to have major impact on the ways in which that



contamination is spread into the environment. It should also be abundantly clear that these impacts have not been adequately studied, and that the action agencies have significant, and enforceable, legal obligations to perform the appropriate analysis and provide for mitigation. Unless and until the action agencies perform these investigations in the form of a new or Supplemental EIS, and provide for mitigation, further changes in reservoir operations is prohibited. 40 C.F.R. § 1506. 1.

The Tribes reserves the right to comment further should it be warranted by the development of additional information or the response of the action agencies to the urgent concerns set forth herein.

## References

- Bortleson, G.C., et al. "Sediment-Quality Assessment of Franklin D. Roosevelt Lake and Upstream Reach of the Columbia River, Washington, 1992.". USGS *Open-File Report* 94-315IJ94.
- Burton, G.A. 1992. *Sediment Toxicity Assessment*. Lewis Publishers, Boca Raton,
- Canfield, T.J., N.E. Kemble, W.G. Brumbaugh, F.J. Dwyer, C.G. Ingersoll, and J.F. Fairchild. 1994. "Use of benthic invertebrate community structure and the sediment quality triad to evaluate metal-contaminated sediment in the upper Clark Fork River, MT". *Environ Toxicol Chem* 13.
- Eisler, R. "Cadmium Hazards Fish, Wildlife, and Invertebrates: A Synoptic Review." Biological Report 85(1.2). Prepared for US Fish and Wildlife Service. 1985.
- Eisler, R. "Polychlorinated Biphenyl Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review". Biological Report 85(1.7). Prepared for US Fish and Wildlife Service. 1986.
- Eisler, R. "Mercury Hazards Fish, Wildlife, and Invertebrates: A Synoptic Review". Biological Report 85(1. 10). Prepared for US Fish and Wildlife Service. 1987.
- Erwin, M.L. and M.D. Munn. "Are walleye from Lake Roosevelt contaminated with mercury?" USGS *Fact Sheet* FS-102-97, 1997.
- Jones, D.S., G.W. Suter 11 and R.N. Hull. "Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Sediment-Associated Biota: 1997 Revision". Prepared for US Department of Energy. Nov. 1997.
- Kemble, N.E., W.G. Brumbaugh, E.L. Brunson, F.J. Dwyer, C.G. Ingersoll, D.P. Monda, and D.F. Woodward. 1994. "Toxicity of metal-contaminated sediments from the upper Clark Fork river, MT, to aquatic invertebrates in laboratory exposures". *Environ Toxicol Chem* 13.
- McLaren, P. and D. Little. 1987. "The effects of sediment transport on contaminant dispersal: An example from Milford Haven". *Marine Pollution Bulletin*. 18:586-594.
- Schnoor, Jerald L. *Environmental Modeling: Fate and Transport of Pollutants in Water, Air, and Soil*. New York: John Wiley & Sons, Inc., 1996.
- US DOE (Bonneville Power Administration), US DOI (Bureau of Reclamation) and USA Corps of Engineers. *Columbia River System Operation Review Final Environmental Impact Statement*. Nov. 1995.

- US EPA. Office of Air Quality Planning and Standards. *Unified Air Toxics Website*. <http://www.epa.gov/ttn/uatw/>.
- US EPA. Office of Pollution Prevention and Toxics. *Persistent, Bioaccumulative, and Toxic (PBT) Chemicals Initiative*. <http://www.epa.gov/opptintr/pbt/>.
- US EPA. Office of Research and Development. "Dioxin: Scientific Highlights from Draft Reassessment (2000): Information Sheet 2". Jun. 2000.
- US EPA. Office of Research and Development. "Mercury Study Report to Congress - Volume III: Characterization of Human Health and Wildlife Risks from Mercury Exposure in the United States". Report No. EPA-452/R-97-009. 1997.
- US EPA. Office of Research and Development. National Center for Environmental Assessment. *Integrated Risk Information System (IRIS)*. <http://www.epa.gov/iris>.
- US EPA. Office of Research and Development. Risk Assessment Forum. "EPA Guidance on Eco Risk Assessment". Apr. 1998.
- US EPA. Office of Research and Development. Risk Assessment Forum. "Workshop on the Use of Available Data and Methods for Assessing the Ecological Risks of 2,3,7,8-Tetrachlorodibenzo-p-dioxin to Aquatic Life and Associated Wildlife". Report No. EPA/630/R-94/002. 1994.
- US EPA. Office of Science and Technology. Great Lakes Water Quality Initiative. Criteria Documents for the Protection of Wildlife, DDT, Mercury 2,3,7,8-TCDD, PCBs. 1993.
- USGS. "Lake Roosevelt and Upper Columbia River Contaminant Program: Environmental and Human Health: Draft Work Plan". Prepared by USGS Water Resources Division, Tacoma, WA. Jun. 2000.
- Woodward, D.F., W.G. Braumbaugh, A.J. DeLonay, E.E. Little, and C.E. Smith. 1994. "Effects on rainbow trout fry of a metals-contaminated diet of benthic invertebrates from the Clark Fork River, Montana". *Trans. Am. Fish. Soc.* 123:51-62.
- Woodward, D.F., A.M. Farag, H.L. Bergman, A.J. DeLonay, E.E. Little, and C.E. Smith. 1994. "Metals contaminated benthic invertebrates in the Clark Fork River, MT: Determining effects on early life stage rainbow trout and brown trout". *Trans. Am. Fish. Soc.* 124.
- Woodward, D.F., A.M. Farag, H.L. Bergman, A.J. DeLonay, E.E. Little, and C.E. Smith. 1997. "Cutthroat trout avoidance of metals and conditions characteristic of a mining waste site: Coeur d'Alene River, Idaho". *Trans. Am. Fish. Soc.* 126:699-706.

Comments of the Fish and Wildlife Department  
Confederated Tribes of the Colville Reservation  
On July 27, 2000 Draft Biological Opinion and All-H Paper

Submitted September 29, 2000

To  
National Marine Fisheries Service,  
Consulting Agency

And

Bureau of Reclamation,  
Bonneville Power Administration,  
Corps of Engineers,  
Action Agencies

- **In the absence of individual recovery plans for each listed salmon species or ESU in favor of a broader Columbia River Basin recovery strategy, i.e. All H Document, it is unclear to the Tribe if the historical range of listed species will be considered as part of this recovery strategy. There is some language in the document that indicate the need for a recovery strategy that encompasses the entire basin, but we cannot find any recovery actions in the document that support investigating salmon recovery options in the current "blocked area!" of the basin. The Tribe is yet to be convinced that recovery will be possible without considering these kinds of actions. A meaningful recovery effort should include all of the listed species historical range and investigate potential recovery measures throughout this entire range. This is of particular concern to the Colville Tribes because much of the Columbia Basin that supported listed species is currently unavailable to the species due to the presence of Grand Coulee and Chief Joseph Dams. While the Tribe is aware that there may be impediments to anadromous fish reintroduction above the "blocked area", a recovery effort that does not even consider the potential recovery benefits from this action is not acceptable to the Tribe.**
- While the Tribe can support a hatchery plan that calls for hatchery reform, we support a hatchery reform program that also uses hatcheries to rebuild wild populations, as opposed to just using hatcheries to prevent extinction while minimizing impacts to wild populations. In addition, the Tribe is very supportive of the hatchery plan element that involves using hatcheries to develop fishing opportunities that don't impact listed species. We have identified several hatchery projects as part of this process which the Tribe believes can meet the requirements of this hatchery element and look forward to initiating discussions with the Federal Parties to begin developing these hatchery programs.

- The Colville Confederated Tribes, as co-managers of the anadromous fish resources in the Columbia River Basin, have been working for many years to protect and restore anadromous fish habitat in the Upper Columbia River Basin. We look forward to continuing with habitat work under this program, support this "H" and believe it is a necessary part of any recovery effort. Having said this, it must also be stated that it will be difficult at best determine recovery benefits in the short term from these actions. We assume this is why immediate actions include those that will be measurable in the short term, i.e. fishbarrier removal, streamflow restoration and screening of diversions. All of these actions need to be addressed within the Okanogan River Basin.
- VARQ- The Tribe recommends delaying the implementation of this BiOp action until such time that NEPA compliance and additional coordination with Canada are complete. The Tribe needs time to better understand the potential impacts as a result of this action on Mid-Columbia River anadromous fish flows and the resident fish resources of Lake Roosevelt.
- **The Tribe does not support the BiOp action that requires an additional two feet of drawdown from Grand Coulee Dam during the summer flow augmentation period during years when the forecast is less than 92 MAF. Fishery studies on Lake Roosevelt have shown unacceptable levels of fish and nutrient entrainment occurring now under the existing summer flow operations. The current fish entrainment is effecting the ability to meet resident fish mitigation requirements and will only become more problematic as a result of this action. In addition, the loss of nearshore habitat associated with further drawdown will effect lake productivity and begin to substantially cause fish entrapment and stranding to occur.**
- The Tribe supports a harvest strategy which somewhat differs from what has been identified as a recovery strategy. We believe more emphasis should be placed on further reduction of mixed stock fisheries, which include listed species. This could be accomplished by focusing more on tributary and terminal area fisheries where more control can be placed minimizing mixed stock fisheries.

In addition please note the comments on the attached memos from the Director of the Fish and Wildlife Department of the Colville Tribes, and from the Tribes' Recreation Enterprise.

# Colville Confederated Tribes

Fish and Wildlife Department

P.O. Box 150 Nespelem, WA. 99155

(509) 634-2110/ FAX (509) 634-2126



September 28, 2000

---

To: Steve Suagee, Attorney  
Office of Reservation Attorney

From: Joe Peone, Director  
Fish and Wildlife Department

Subject: Additional Comments for Bi-Op / All-H

Fish and Wildlife puts the following points to be added to the Bi-Op and All H comments:

- 1) CCT maintains that the Bi-Op include measures for salmon recovery that expand into the historical habitat areas. Such areas as Rufus Woods above Chief Joe Dam and long term goals for above Grand Coulee Dam. It will be very difficult to recover summer steelhead and salmon populations to harvestable and sustainable levels if the historical habitat is not part of the solution. CCT recommends that pilot projects of trap and haul be developed and implemented for the Rufus Woods reservoir for the listed species of summer steelhead and spring Chinook to evaluate the feasibility.
- 2) The current 95-Bi-Op and the proposed Bi-Op may have a negative impact on white sturgeon spawning in Lake Roosevelt and Rufus Wood reservoir. The BiOp will need measures to help study this.
- 3) The implementation of the 95-Bi-Op and the proposed Bi-Op, directly have a negative impact on the Lake Ecosystem. Biological productivity will significantly decrease as the near shore shallow areas dry up. These near shore areas are very productive in summer months.
- 4) The potential to increase entrainment of resident fish is evident by the decreased retention time of Lake Roosevelt.

- 5) The CCT appreciates the opportunity to develop production measures that provide increased harvest for their tribal members and local constituents.
- 6) The CCT recommends and request that the federal caucus help develop a transboundary water group to address habitat quality concerns in the Okanogan Basin.
- 7) The CCT ask that NMFS reconsider the prioritization of sub-basin in the Columbia Basin for salmon recovery. The CCT relies heavily on the Okanogan Basin for sustainable resources.
- 8) The CCT asks that the federal caucus help find funding for the A/B list. This list represents priorities for the CCT in restoring, enhancing and mitigating fish and wildlife for their people.

Cc: CBC  
NRM  
file

# MEMORANDUM

To: Steve Suagee, Reservation Attorney

Date: 9/19/00

From: Andrew F. Pooler

Subject: Lake Roosevelt Water Elevation

koosevelt Recreational Enterprises (RRE) is a division of CTEC and operates the Seven Bay's Marina and Keller Ferry Marina on Lake Roosevelt under National Park Service Concessions. lie marinas provide gas to boating customers and operate a rental fleet of 34 houseboats along with 220 moorage slips. The marinas also operate restaurants, convenience stores and gift shops.

RRE's revenue is seasonal and very dependent on the lake's elevation. Under low water conditions the moorage slips become inoperable, the docks along with their utilities require relocation and access for houseboat customers become difficult and sometimes dangerous. These conditions result in lower sales and higher operating costs. Future sales are also negatively impacted *when* customers communicate to their bad experience on Lake Roosevelt.

In closing, lower lake elevations can easily mean the difference between generating a profit or recording a loss.